

PROGRAM FOR ARTERIAL SYSTEM SYNCHRONIZATION (PASS) FY13/14 CYCLE

Mission Boulevard Signal Timing Project

City of Fremont | Metropolitan Transportation Commission

PROJECT OVERVIEW

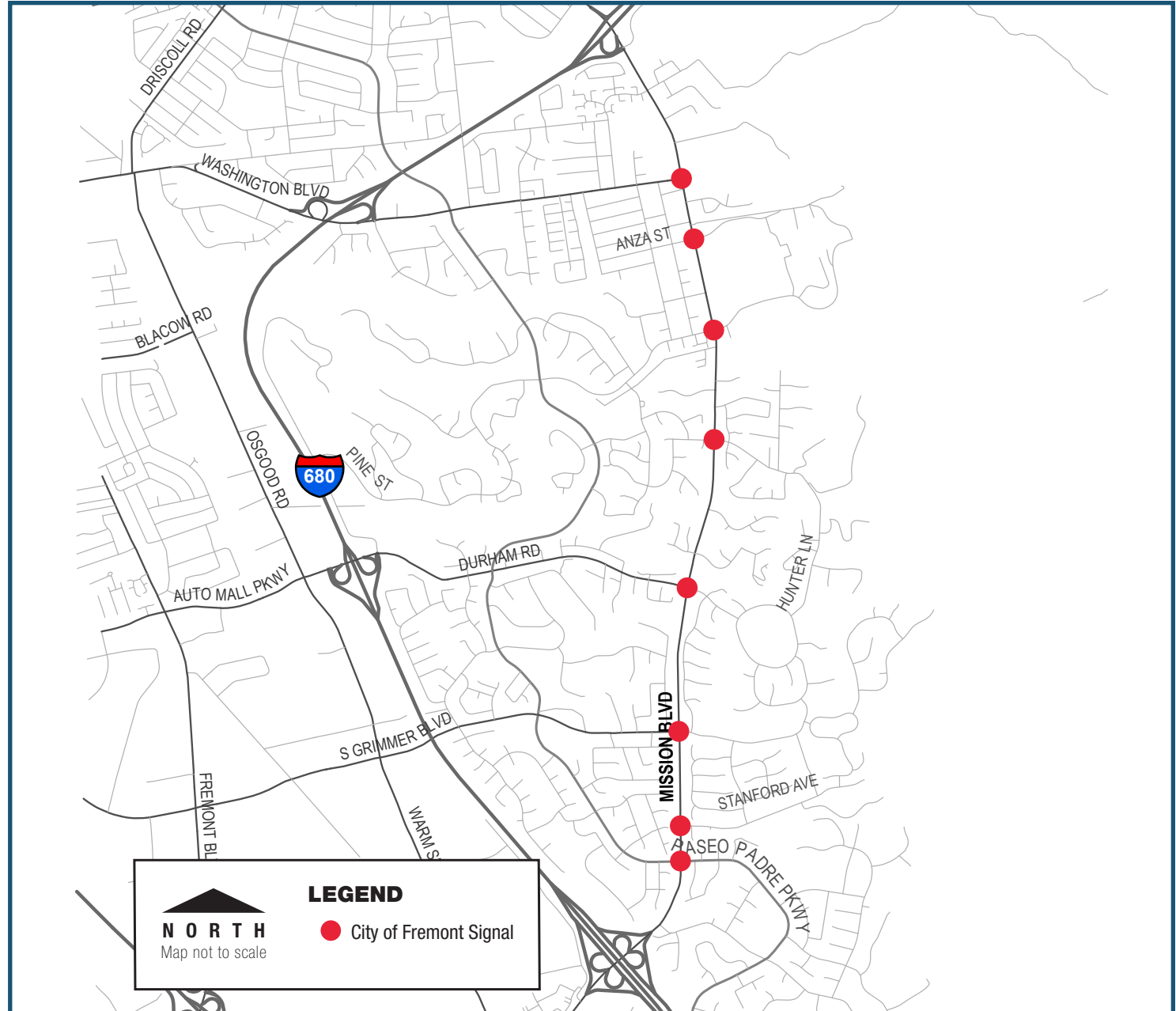
The City of Fremont received a grant from Metropolitan Transportation Commission's Program for Arterial System Synchronization (PASS) to deploy optimized signal timing plans along Mission Boulevard between Washington Boulevard and Paseo Padre Parkway. As part of the project, eight intersections were identified for retiming during the weekday AM, midday, and PM peak periods.

All signals are currently fully-actuated and owned and maintained by the City of Fremont. The project intersections operate using Eagle EPAC300 series controller (NEMA TS2) and communicate to the City's central signal system (Siemens ACTRA) in their Traffic Management Center (TMC) via copper twisted-pair cable.

The goal of this project is to improve traffic operation along the study corridor by developing and implementing optimized signal timing coordination plans that would improve air quality by decreasing traffic congestion.

The PASS project involved the completion of the following tasks: data collection, review of traffic data (including collision data), development of recommendations for actuated timings, development of coordination plans for the weekday AM, midday, and PM peak periods, implementation and fine-

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PROJECT OVERVIEW (CONTINUED)

tuning of the recommended timings, “before” and “after” travel time surveys, and project documentation.

After fine-tuning, overall progression for the coordinated movements was good, with minimal delay for non-coordinated movements (i.e., side streets). Offset revisions were made to enable enhanced progression.

BENEFITS TO VARIOUS MODES



BENEFITS TO BICYCLISTS:

Mission Boulevard has Class II bicycle lanes and the minimum green time for the major street was reviewed and

compared with the City of Fremont's Typical Timing Parameters (TTP).



BENEFITS TO PEDESTRIANS:

Pedestrian timing parameters were reviewed and all walk times were increased to seven seconds to meet the City's TTP.

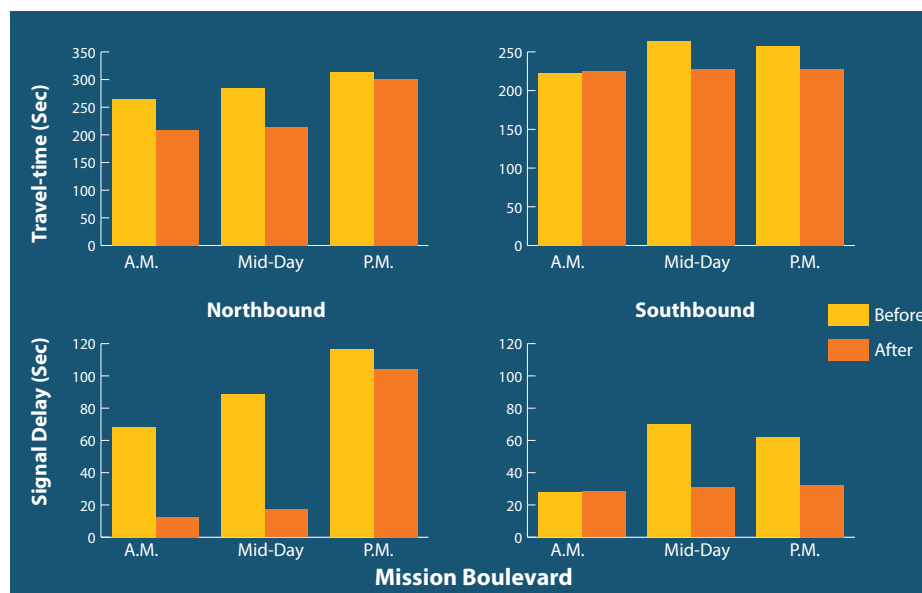


BENEFITS TO TRAFFIC SAFETY:

To enhance traffic safety, all timing parameters at each project intersection were reviewed. These parameters

include: minimum green time, yellow time, red clearance time, Walk time, Flashing Don't Walk time, and extension time. The existing yellow time was updated to meet the 2012 California MUTCD and the City's TTP.

| Project Costs | | | | |
|--|--------------------|-------------------|--------------------|-------------------|
| Consultant Costs (Basic Services/ Plans) | | | | \$20,000 |
| Other Project Costs (cabinet and controller equipment) | | | | \$0 |
| Agency Staff Costs (Estimate) | | | | \$5,000 |
| Total Costs | | | | \$25,000 |
| Project Benefits | | | | |
| Measures | First Year Average | | Lifetime (5 Years) | |
| | Savings | Monetized Savings | Savings | Monetized Savings |
| Travel Time Savings | 6,291 hrs. | \$122,770 | 16,876 hrs. | \$329,337 |
| Fuel Consumption Savings | 14,120 gal. | \$54,490 | 37,877 gal. | \$146,173 |
| ROG Emissions Reduction | 0.047 tons | \$59 | 0.126 tons | \$158 |
| NOx Emissions Reduction | 0.024 tons | \$428 | 0.064 tons | \$1,147 |
| PM2.5 Emissions Reduction | 0.001 tons | \$446 | 0.004 tons | \$1,197 |
| CO Emissions Reduction | 0.560 tons | \$43 | 1.502 tons | \$116 |
| Total Lifetime Benefits | | | | \$478,129 |
| Overall Project Benefits | | | | Auto |
| Average Decrease in Travel Time | | | | 9% |
| Average Speed Increase | | | | 15% |
| Average Fuel Savings | | | | 6% |
| Average Reduction in Signal Delay | | | | 57% |
| Average Reduction in Number of Stops | | | | 57% |
| Overall Benefit-Cost Ratio | | | | 19:1 |



PROJECT BENEFITS SUMMARY



Average Reduction in Auto Signal Delay: 57%

Average Reduction in Number of Stops: 57%

Auto Fuel Consumption Savings: 6% or 37,877 gallons



Total Emissions Reduced (ROG, NOx, PM2.5, CO): 1.69 tons

Auto Travel Time Savings: 9% or 16,876 hours



Overall Project Benefit-cost Ratio = 19:1



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